PENTAGON FIT TO WIN
RUNNER'S NEWS QUARTERLY

DIRT & MUD

Fall 2003

Our First Article

We get many inquiries regarding our name "Dirt & Mud." It is all explained in the first article of our first issue(1991) reprinted below:

Whether in snow or sleet, sunshine or puddles, "Dirt & Mud" are two familiar companions to every runner. If you ever check for tread wear on your outer sole, you will see dirt conveniently lodged in all of those grooves and crevices. This actually increases cushioning with each foot strike.

And what about mud! When you were a child, do you remember those puddles you would jump in but later receive the all too familiar reprimand with pointed finger from your mother?

We support football analyst John Madden's opinion of professional football…real football players get dirt and mud all over themselves.

So go ahead! Do now what you could not do way back when….run through those puddles and enjoy the sense of freedom and fun that can be a part of every run you may have. And, may you have many!

Health: Your Number 1 Priority

By
Dave Holes

Over the past three months I have had several acquaintances who have lost someone close to them. The individuals who passed on all were recently retired and in their early to mid fifties. They had worked for the government for over thirty years and had put a lot of time and effort into planning their retirement. Unfortunately, from what I am told, none of them looked out for their health. They did not exercise or have good eating habits and all were overweight. They all died suddenly and unexpectedly from cardiovascular disease… a disease that is 90% preventable through lifestyle modification.

I am writing this article because our society puts so much emphasis on how we look rather than how healthy we are. As a result, many people look at health and weight in the same picture when they really are two separate entities. The models that are on TV advertising the latest fitness gimmick probably are not as healthy as you are led to believe, while the pudgy aerobics instructor that we all might know is in top physical shape even though her/his appearance is not viewed as optimal.

I want you to make yourself your number one priority. So many times I hear people telling me how active they were before coming to the Pentagon and how poor their eating habits have become. Coincidentally, their blood pressure and cholesterol values have increased along with their waistline. Their physical activity regiment is pretty much nonexistent and their stress levels are approaching critical. Yet, they put off making changes while they are here citing too little time and too busy with family affairs. And even though their declining health is staring them between the eyes they generally feel fine and believe they always have tomorrow. I am sure recent retirees have similar thoughts, believing there is always tomorrow to start focusing on their health.

So you might be asking; Dave what do you expect me to do? I work 12+ hours per day, have the DC commute to deal with and a spouse and kids at home. How am I supposed to focus on my health with such a busy life? Relax. It's not as complex as it might sound.

The first thing that you must do is focus on your physical activity. I know you might work out 2-3 days per week currently but I am asking you to get your exercise frequency to seven days per week. Before you freak out let me explain how you are going to do this.

The surgeon general and other health organizations always tell us to exercise 30 or more minutes on most days of the week to improve health. What is really vague in this recommendation is the intensity of the exercise. What is becoming more prominent in the literature is that it is the intensity of exercise, not necessarily the duration, which is most critical in preventing

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death from chronic disease. The intensity that we are talking about is not all that difficult.

Some examples would be running at 6.0 mph or greater; climbing the Stairmaster at 10 METS, using the elliptical at 85% or greater of age predicted maximum heart rate. The real take home point here is that the time needed to achieve huge health benefits is between 5-10 minutes daily. If you ran from the Pentagon river entrance to the end of north parking that would take about 3:30 running at 6.0 mph. If you ran to and from your car in north parking the time would average 7 minutes of intense activity. You don't even have to budget time out of your day to go to the POAC or go run!

Another example would be to walk from the 1st floor to the fifth floor 3-5 times. You could leave early for a meeting and walk up and down the stairs on your way to the meeting. If you go to the POAC, and only lift weights you need to factor in a ½ mile to 1-mile run or at least 5- 10 minutes of cycling. Of course, if you can do more time that would be beneficial but the key point is any activity that you do **has the potential to** stave off chronic disease.

Whatever happened to jumping jacks, jumping rope, and mountain climbers? Combining jumping jacks for 30 seconds immediately followed by mountain climbers and walking lunges will give you a powerful work out and at the same time, help you to develop stronger legs. You could do all these exercises in your office even without changing clothes.

There are so many options open to you to get 5 minutes of exercise per day. These 5 minutes of relatively intense exercise may be the few minutes that save your life. Focus on yourself for a change so when you retire you'll be physically fit to do the activities that you enjoy. Don't wait for tomorrow, get your exercise going every day!

In addition to the daily intense exercise, you also need to be aware of proper nutrition. Just because the food product says it's low in fat and cholesterol does not mean it is healthy. In fact many foods that are packaged low in fat are detrimental to your health! Focus on eliminating packaged foods that contain enriched flour, partially hydrogenated oil and/ or high fructose corn syrup. These substances are at the heart of the obesity epidemic and increase your risk for chronic disease afflicting much of our population. You'll see that it is very difficult to purchase any packaged or frozen foods that do not contain one or more of these ingredients. In place of these foods substitute nuts, (including peanuts, almonds, pecans, walnuts) natural peanut butter, cold water fish (salmon, cod, tuna, mackerel, herring) and plenty of fruits and vegetables. Much of our population is deficient in omega-3 fatty acids found in fish that plays a vital role in cardiovascular health. Two to three servings of 3-4 oz of fish per week is all you need to correct for this deficiency. If you don't like fish consider taking omega-3 fatty acid pills or fish oil gel caps. In addition, look for foods that are high in magnesium and potassium to correct for sodium imbalance. Sodium imbalance can contribute to elevated blood pressure; a very strong predictor for cardiovascular disease. This web page will help.

(http://www.drlark.com/nc/fatigue_potass_magnes.asp

Also consider taking a multivitamin containing 400 mcg folic acid, 200mcg selenium, and vitamin B complex. These substances control homocysteine levels in your blood. Homocysteine is an amino acid formed from the degradation of protein that if uncontrolled can contribute to heart disease.

Just by altering your diet you can correct for vitamin and mineral deficiencies that can ruin your health. The food you eat is what the body uses to regenerate its cells. If you eat poorly the body will not function properly and becomes more susceptible to chronic disease. Combining these simple steps with short duration daily exercise will keep your quality of life high and help to prevent a premature end.

Running and Upper Body Strength

By

Kevin Saffer

The importance of upper body strength for runners is a principle that many runners and running coaches often overlook. Many coaches feel that strength training will lead to muscle gain, which will increase weight and decrease flexibility, thus hindering the athletes running style. There have been no studies done to show that strength training leads to a decrease in flexibility. Several studies have actually shown an improvement in motion due to strength training. This is especially true when strength training is combined with stretching. Also, most distance runners have a very lean physique that resists significant increases in muscle size and bodyweight. Two to 4 pounds of extra muscle from strength training is like putting more cylinders in an automobile engine.

Improved upper body strength benefits the long distance runner in numerous ways. During the late stages of a race, arm actions are very important for maintaining speed, especially when leg muscles are severely fatigued. Strength training also improves performance when running on hills. Stronger muscles provide more power for running up inclines, offer better shock absorption, and enhance injury prevention when running down hills. Strength training guidelines for long distance runners are very different than those guidelines established for athletes looking to gain power.

Power athletes typically perform multiple sets of the same exercise for 4 – 8 reps. Endurance athletes such as long distance runners should perform between 12 and 16 reps, and may only need one set per exercise to see significant improvements in strength. The higher number of repetitions will improve muscular endurance as well as muscular strength. It may also prove beneficial for endurance athletes to perform these exercises in a circuit. A circuit consists of performing a given exercise, and then with minimal rest in between sets, perform another exercise that targets a different muscle group. This method of training leads to improved muscular endurance, and possibly a slight increase in aerobic

capacity, which is vital for optimal performance during long runs.

It is also important to note that upper body strength is vital for health reasons regardless of training style. Osteoporosis is a major health problem that primarily affects women, but can also be seen in some men. Bone mineral density is directly related to the amount of stress put on the bone. Runners typically have above average bone mineral density in their legs and spinal column, but average bone mineral density in their upper body. The stress needed to improve bone mineral density is site specific. In other words, you have to directly use resistance training for the upper body muscles to improve the bone density of these muscles. Upper body resistance training can lead to improved running performance, as well as improved health.

Your Second Wind

By

Kevin Saffer

A phenomenon that occurs quite often with long distance runners is "the second wind". A "second wind" is defined as a new surge of energy after a period of physical or mental exhaustion. The expression refers to the fact that a person's metabolism changes to a more efficient mode during prolonged exercise.

When participating in prolonged exercise, the body primarily utilizes carbohydrates and fats as fuel. During the initial stages of a prolonged run, carbohydrates stored in the muscles as glycogen serve as the primary energy source used to fuel exercise, with some stored fat being used for energy. After about 90 minutes, stored muscle glycogen is significantly depleted. At this stage, fat begins to serve as the primary source of fuel for the later stages of the run. It is important to understand that there is always some combination of carbohydrates and fats being used for energy. Fat cannot be burned without the presence of some carbohydrate. When muscle glycogen stores are depleted, the runner often becomes severely fatigued. This is often referred to as "hitting the wall"! This is the point during the run where consuming carbohydrates in the form of a sports drink or some high carbohydrate food is necessary.

This exogenous source of carbohydrate will not completely replenish your stored muscle glycogen levels, but is necessary for your body to utilize stored fat as energy for the remainder of the run. Stored fat delivers twice as many units of energy per gram compared to carbohydrates. Fat also burns much slower and for a longer period of time than carbohydrates. This is why the "second wind" can carry you well into the ending stages of the run.

So what does all of this mean for the long distance runner? There are ways you can better utilize the "second wind" phenomenon. One way is to cue your carbohydrates to start burning early with a vigorous warm up of 10 to 15 minutes. This will allow your stored fat to be utilized quicker in the run, allowing your "second wind" to last longer. Also, hydration plays an important role in maintaining the second wind. If you consume 24 ounces of water or sports drink 2 hours before the start of your run, and another 8 ounces about 15 minutes before the run, you will be able to begin your second wind quicker, and maintain it longer.

It is important for the runner to know that your level of cardiovascular fitness and the ability to utilize the second wind are directly correlated. Unfit individuals will have to rely on carbohydrates for fuel because their body is not conditioned to maintain a high level of aerobic intensity. This also leads to an increase in lactic acid production, which also hinders performance. Through proper training, the long distance runner can better utilize their second wind as well as prevent the build up of lactic acid.

Hormones and Metabolism

By

Lt Col Steve Vieira PhD.

Hormones are secretory substances carried from one gland or organ of the body via the bloodstream to more or less specific tissues, where it exerts some influence upon the metabolism of target tissue. A lack of any one of various hormones secreted by the endocrine glands may cause serious disorders in the production of bone and muscle tissue. Some hormones you hear about frequently such as testosterone stimulate protein synthesis and accounts for the greater muscular development of the male.

For many years, athletes with the goal of improving physical performance have used synthetic steroids similar to testosterone. Medical research has shown that these drugs may have a wide range of harmful side effects. Did you know progesterone is secreted chiefly by the corpus luteum and acts to prevent spontaneous abortions and aids in mammary gland milk production during female pregnancy?

Progesterone is also synthesized from cholesterol. Synthetic compounds with progesterone like activity along with estrogen are used in oral contraceptives. Estrogen also affects other tissues in blood vessel development, along with bone, and muscle development. Without proper hormone levels maintained in female development there is an increased risk of osteoporosis in postmenopausal women, increased risk of breast cancer, heart attack, and stroke. In men estrogen is used to treat prostate cancer.

Hormones have key parts in our male and female development. Without proper balance some hormones can cause increase breakdown of protein and decrease protein synthesis that result in inhibited growth in children or weakening of bones and wasting of muscles in adults. The small group of hormones mentioned is only a few in the sum of all biochemical processes involved in life.

In our biochemical processes we have two subcategories of metabolism: (1) anabolism, the building up of complex organic molecules and, (2) catabolism, the breakdown of complex substances into simpler molecules, often accompanied by the release of energy. Exercise, food, and environmental temperature

influence metabolism. Basal metabolism is the caloric expenditure of an organism at rest; it represents the minimum amount of energy required to maintain life at normal body temperature. The basal metabolism rate is usually measured indirectly by calculation from measurements of the amount of oxygen and carbon dioxide exchanged during breathing under certain standard conditions such as complete rest, running or after ingestion of food.

What is this subject leading into? Did you know that many instances of lower leg pain are due to stress fractures, which are small-scale breakdowns in bony tissue? The tibia, the principle bone in the lower part of the leg, is the site of about 50 percent of all stress fractures in athletes. Repetitive impact forces can cause stress fractures and can worsen to an actual dislocation fracture. The underlying problem may be a nutritional one, such as the inadequate intake or absorption of calcium or low hormonal levels of testosterone and progesterone.

An athlete who develops a stress fracture should rest, apply ice, elevate and gently compress until symptoms of the fracture are reduced and then blithely resume training. Bone deterioration could be the result of using poorly cushioned running shoe sand/or running on very hard surfaces such as concrete. There also may be a poor nutrition factor such as insufficient calcium or impaired absorption of calcium. Athletes should have a complete analysis of their diet. Athletes with stress fractures should also make certain that adequate levels of testosterone (males) and estrogen (females) are in proper concentrations for optimal bone maintenance.

Fit To Win in the DiLorenzo TRICARE Health Clinic can help you get on the right track come see us or call 692-8898 for an appointment with our knowledgeable staff.

Running Injuries and the Shoes You Wear

By
Shari Tomasetti

Recent reported data from the Running Shoe Clinic at the Pentagon shows the top three running pains to be; knee pain, plantar fasciitis, and shin pain. There may be different causes for this, such as overtraining, not weight training or stretching improperly, and wearing the incorrect running shoes for your running gait.

According to Joe Ellis, D.P.M. and Joe Henderson, columnist for Runner's World magazine, you can find shoes that are likely to alleviate your running pains if you are knowledgeable about your biomechanics. This article will examine seven different injuries and how symptoms can be reduced through purchasing the right running shoe. These injuries include; hip, knee and metatarsal pains, shin splints, Achilles tendonitis, chronic ankle sprains, plantar fasciitis and heel-spur syndrome.

Let's begin with hip pain. The pain in the hip is generally on the outside of the hip area. These symptoms can be reduced with better shock absorption, or a soft midsole and slip lasting. Controlling pronation is not a concern for hip pain.

Knee pain, the most common pain in recent research, can be on the lateral or medial side of the knee. To decrease lateral pain, a shoe with motion control properties is needed. Dual-density (eva 2) midsole material on the medial side of the shoe, accompanied with a combination last (board in the heel) is the best for controlling motion. If medial knee pain exists, then the opposite is true. A shoe with a soft midsole and/or purchasing a cushioned insert to absorb shock will decrease these symptoms.

If you are suffering from shin splints, first try to increase the strength on the front and inside of your legs. If this doesn't work then read on. Too much pronation may cause a muscular or tendon strain. A doctor should look evaluate this. A shoe with moderate pronation control may help. The shoe also should have cushioning and flexibility. Try a stability shoe, or a cushioned shoe built for someone weighing over 180. An over-the-counter cushioned insert will also help absorb shock.

If you feel that you are suffering from Achilles Tendonitis, you may be overtraining your calf muscles. Tight calf muscles typically accompany this problem. Try a stability shoe, built for over-pronators. A shoe that lifts the heel slightly will help take pressure off the irritated tendon, such as the new balance 900 series. You may also try to use a heel cup. Stay away from inflexible shoes that use a chamber cushioning system to allow for flow of air from the front to the rear of the shoe. This causes inflexibility in most shoes.

If you are cursed with chronic ankle sprains, you may have too much motion at the ankle joint, caused from weak ankles or previously injured ligaments that are stretched out. Try to strengthen your ankles through exercises such as drawing the alphabet with a free foot, rotating at the ankle joint. A shoe that offers stability and a firm midsole, will give the best support.

Plantar fasciitis and heel-spur syndrome causes pain under your heel, through the arch and sometimes into the ball of your foot when the plantar fascia is strained. If this remains untreated, it can lead to a bone spur that forms under the heel. Shoes for pronation, such as stability or motion control will offer support, but may not stop pain. An over the counter insert with arch support also may be needed, along with time off.

Metatarsal pains are caused from excessive impact on the ball of the foot and can lead to metatarsal stress fractures, and other symptoms around the ball of your foot. A very flexible shoe with a slip last and a soft midsole, like gel should help take pressure off of this area.

If pain persists after implementing these tips, a doctor visit, or a running shoe clinic appointment is recommended.

Running Shoes & Midfoot Support

By
Shari Tomasetti

A running shoe is made up of many different parts, one of those being the midfoot support. The midfoot support is made up of rigid material and is found on the outside or inside of a running shoe between the heel and the forefoot area (in the middle, where your arch is predicted to be). The midfoot support allows for more stablilty and easier transition from heel strike to toe off. The midfoot also helps provide arch support and are lightweight.

Each company has a little different midfoot support system and has name for theirs. Each system allows your forefoot and heel to move independently and more efficiently and naturally.

Here are a few of the major brands:

- Asics uses a trusstic system.
- Nike uses a footbridge.
- New Balance uses a stability web.
- Adidas uses a torsion system for support.
- Brooks inserts a DRB Accel system to increase torsional stability.
- Saucony names theirs a support bridge.
- Reebok lists there midfoot support as a transition bridge.

A midfoot support does not come on all running shoes. If you have been running with a midfoot support you may opt to stay with it if you have no problems with your arches. If you feel any pain in your arch and you notice your shoe has a midfoot support, try to find a shoe without the midfoot support to see if this helps decrease the pain. If you are using an orthotic for only arch support and the running shoe comes with a midfoot support you may not need both, especially if you are incurring pain in the foot.

One last note, when purchasing a shoe, one way to note if a midfoot support is right for you is to try the shoe on and make sure it feels comfortable on your feet!

Abdominal Fat

We think it is a significant move toward emphasis on health that the Army and Air Force will be incorporating measuring the circumference of the abdomen as part of their body fat/tape tests. The army will add this site and delete an existing site for both sexes. The Air Force will use this as the only measurement site for both males and females. The rationale behind this is body fat standards should be based on health criteria. What, in fact, is the association between the size of one's neck and good health?

There is, on the other hand, a direct correlation between abdominal fat and cardiovascular risk. Fat cells act differently at the abdomen than anywhere else in the body. They produce three times more substances that increase clotting and arterial inflammation, which acts to narrow vessels, increase fat deposits and insulin resistance.

This fat surrounds and protects the organs inside this region of the body. But an abundance of this fat is a risk factor for heart disease, diabetes and different cancers.

An interesting study was conducted at Yale University a few years back and published in "Science Daily." Researchers observed that non-overweight women who are stressed are more likely to have excess amounts of abdominal fat because of high levels of cortisol. This hormone is released when one is under stress or anxiety.

Furthermore, women with greater abdominal fat tended to have more negative moods and higher levels of stress in their daily lives. It seems the higher the amount of cortisol secreted the higher the potential amount of abdominal fat produced.

Age and lifestyle are also correlated to accumulation of abdominal fat. Excess fat in men is always stored in the abdomen area. Post-menopausal females due to changes in sex hormones also store fat in the abdominal area. Pre-menopausal women tend to store fat at the hips.

Your lifestyle behavior is a large factor as well. Those who smoke, drink and do not exercise risk greater abdominal fat stores. And, as we have mentioned, stress plays a significant role in this process. Adequate sleep, moderate drinking, exercise and stress coping skills are the preferred strategies to avoid excess abdominal fat.

Stress…Then Rest

Training is all about stress. Some of the stress we bring into the training session is emotional or mental, but most of it is physical. Without adequate stress on the muscles and bones strength and endurance would never occur. Sufficient stress effectively destroys muscle tissue in order ultimately to promote stronger tissue. This process is much like knocking down the foundation of a house and then rebuilding it with newer and stronger materials.

Your main ally in this process is **sufficient rest and recovery.** Rather than removing and replacing your muscle tissue after each training session, your physiology allows a "morphing" of your body's tissue into a stronger muscle unit.

Without this rest period this metamorphosis is compromised as is the quality and quantity in some cases of the reconstituted muscle tissue. If you continue to stress the muscle with insufficient recovery, your body will force you to stop via pain.

WITH PAIN, NO GAIN

Your muscles accommodate themselves to the amount of recent stress or work to which they have adapted. But, this accommodation must be gradual in order for the muscles to increase to higher fitness levels. When muscle cells are pushed beyond their own capacities, they become damaged with micro tears in the cell membranes (walls). The mitochondria in the tissue, which break down food and convert it into usable energy, becomes swollen and compromised and the available fuel becomes depleted.

This, however, is what you want to occur. The joy in this destruction can be realized, however, only if you have allowed a recovery period. Most research reports that it takes between 24 to 48 hours for the cells to repair this stress-inflicted damage. Recovery permits over-stressed muscle cells to reconstitute into a stronger unit so that it can support a greater load (progressive

overload) or develop a capacity for greater endurance for the next training session.

As cell membranes strengthen, they become more dense or thick. The mitochondria increase in size and capacity thereby producing more energy. Arteries and vessels bring in more blood and remove more waste because you have increased the number of capillaries (gates) where fresh oxygenated blood flows in and oxygen-depleted blood flows out.

It should be obvious that the benefits accrued during this recovery period outweigh any need to train hard. You are not being asked to completely rest. Research reports that light or easy training can improve recovery in many people because blood flow is higher compared to rest. Cross training would be suggested here. This could include biking, swimming or some similar low or non-impact aerobic activity using primarily opposing muscles to the predominant hamstrings developed by runners. Also, weight training the upper body and conditioning the abdominals could be performed.

The next time you notice pain a self-examination of your training program would be in order. T avoid pain stick to the hard/easy rule…if you run hard one day, recover the next with non-running, low/non-impact activity. Unfortunately, as you age the recovery time increases. So be prepared to consider alternative training programs. These can sustain you with a high fitness level and a very low risk for injury. This is stress management.

Stretching vs. Warming –Up

What's The Difference?

Plenty! These are two different techniques, which are often confused. It is not unusual to see runners "warming up" with "stretches" which are held for 5-10 seconds before going to the next one. If you are guilty of this, you could be doing more harm than good; for you are neither really warming-up nor stretching properly.

Many of us learned in high school and basic military training that the first thing we do before any physical activity is to stretch. The price many of us have paid for this directive is the acquisition of many injuries over the years and subsequently, poor flexibility. But, the good news is that runners are never to old to retrain the body to gain flexibility and reduce the risk of injury by relearning proper warm-up and stretching techniques.

Why Run?

We started this issue with discussing the health benefits of exercising, and we are going to end it with the same theme. To run, exercise and move is to live with vigor and fitness. Certainly many of us are overweight, but that does not preclude good health and fitness.

The Center for Disease Control (CDC) estimates that 67% of men and 62% of women are overweight. Almost 1/3 of the adult population is obese, which by its definition is non-fit and non-healthy in essence. In other words if you are obese you are not well or fit. Twenty years ago only 15% of our population was obese.

Sixty percent (60%) of Americans get little or no exercise. About 822 people per day will die of obesity related diseases. While most causes of this mortality are attributed to cardiovascular diseases, cancer – obesity related deaths are increasing. For women 20% of all cancer deaths are attributed to obesity and for men it is about 14%.

In 2003 40% of women and 24% of men are on a specific diet. Most of these dieters will not get a sufficient amount of exercise to prevent them from failing to keep any weight loss off longer than a year. Our bodies are programmed for fat-storage as is evidenced with the evolutionary role of "hormones." Ghrelin is one of the more mischievous ones. When you start to lose weight this hormone triggers our hunger mechanism to eat more. The more weight you lose, the more intense the release of this hormone to get us to eat even more.

Fifty percent (50%) of all people who start an exercise program stop within 6 months. The CDC asserts that 60-70% of all illnesses are stress-related. And if trying to exercise and reduce stress are not hard enough, those who try to stop smoking have an even more formidable challenge to regain their health.

There are no diets, pills, medical procedures, spiritual excursions, special equipment, gels, creams, potions or chants that will turn these problems around. The answer lies within. Your will to exercise, to move, to run is the solution.

A program such as Fit To Win supports your drive to address any of these concerns. For some of you it is the starting that will be the hardest. Others will find it more difficult to run or exercise regularly. But, once you have firmly put your resources and power behind your will, you will do it. For help along the way use the info below to contact us. We will be more than happy to be your partner.

To Contact Us

If you have any questions, comments or suggestions, please contact us in one of the following ways:

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